Juvenile Human Dermal Fibroblasts

300691

GENERAL INFORMATION

Description

Human dermal fibroblasts derived from juvenile donors represent primary mesenchymal cells isolated from the dermis of young individuals. These cells exhibit the characteristic spindle-shaped morphology and robust proliferative capacity typical of fibroblasts, with generally higher growth rates and longer replicative lifespans compared to adult-derived counterparts. Juvenile dermal fibroblasts actively synthesize and remodel extracellular matrix components, including type I and III collagen, fibronectin, and proteoglycans, reflecting their critical role in skin development, structural maintenance, and wound repair.
Juvenile fibroblasts are often characterized by lower levels of senescence-associated markers and reduced baseline expression of inflammatory mediators, making them particularly suitable for studies focused on tissue regeneration, fibrosis, and developmental biology. Their responsiveness to mechanical and biochemical cues also makes them a valuable in vitro model for investigating dermal remodeling and cell–matrix interactions.
Human juvenile dermal fibroblasts are widely used in research areas including wound healing, regenerative medicine, and cosmetic science. Due to their high proliferative potential and active extracellular matrix production, they serve as an effective model for evaluating biomaterials, drug responses, and anti-aging strategies. However, as primary cells, they retain donor-dependent variability and have a finite lifespan in culture, necessitating careful experimental design and early passage use for reproducible results.

Tissue	Skin

CLASSIFICATION

Organism	Human
Sex	Unspecified
Growth properties	Adherent
Biosafety level	1

CHARACTERISTICS

Morphology	Bipolar, refractile and spindle-shaped
Cell type	Skin fibroblast

IDENTIFIERS

Citation

Juvenile Human Dermal Fibroblasts (Cytion catalog number 300691)

NCBI TaxID	9606

HANDLING AND CULTURE

Culture medium

CTIGM.Fibro : Growth Medium for Fibroblasts

Incubation atmosphere	37°C, 5% CO_2, humidified atmosphere.

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Thawing and culturing

Confirm that the vial remains deeply frozen upon delivery, as cells are shipped on dry ice to maintain optimal temperatures during transit.
Upon receipt, either store the cryovial immediately at temperatures below -150°C to ensure the preservation of cellular integrity, or proceed to step 3 if immediate culturing is required.
For immediate culturing, swiftly thaw the vial by immersing it in a 37°C water bath with clean water and an antimicrobial agent, agitating gently for 40-60 seconds until a small ice clump remains.
Perform all subsequent steps under sterile conditions in a flow hood, disinfecting the cryovial with 70% ethanol before opening.
Carefully open the disinfected vial and transfer the cell suspension into a 15 ml centrifuge tube containing 8 ml of room-temperature culture medium, mixing gently.
Centrifuge the mixture at 300 x g for 3 minutes to separate the cells and carefully discard the supernatant containing residual freezing medium.
Gently resuspend the cell pellet in 10 ml of fresh culture medium. For adherent cells, divide the suspension between two T25 culture flasks; for suspension cultures, transfer all the medium into one T25 flask to promote effective cell interaction and growth.
Adhere to established subculture protocols for continued growth and maintenance of the cell line, ensuring reliable experimental outcomes.

QUALITY CONTROL AND CRYOPRESERVATION

Freeze medium	As a cryopreservation medium, we use complete growth medium (including FBS) + 10% DMSO for adequate post-thaw viability, or CM-1 (Cytion catalog number 800100), which includes optimized osmoprotectants and metabolic stabilizers to enhance recovery and reduce cryo-induced stress.

Storage conditions

For long-term preservation, place vials in vapor-phase liquid nitrogen at about −150 to −196 °C. Storage at −80 °C is acceptable only as a short interim step before transfer to liquid nitrogen.

Shipping conditions

Cryopreserved cell lines are shipped on dry ice in validated, insulated packaging with sufficient refrigerant to maintain approximately −78 °C throughout transit. On receipt, inspect the container immediately and transfer vials without delay to appropriate storage.

DONOR

Donor age	1-17 years
Ethnicity	Unspecified

LEGAL AND SAFETY

Safety precautions

When planning to store a cryovial in liquid nitrogen for future thawing, it is mandatory to adhere to stringent safety measures. Appropriate protective gloves and clothing are essential, and the use of a face mask or safety goggles is required during the transfer of frozen samples to or from the liquid nitrogen tank. This is to mitigate the risk of injury from potential cryovial explosions upon removal, which can result in the projection of sharp fragments.

Warranty

At Cytion, we stand behind the quality and viability of our products.
We guarantee that our cells will be viable at the start of culture for
60 days after shipment from our facilities.
We assure that all materials conform to the specifications described in the
Certificate of Analysis and/or Product Sheet.
For full details, please refer to our
Warranty Statement.

Material Transfer Agreement required	Yes